

A NEW SPECIES OF *TIPULA* (*SINOTIPULA*) FROM NEW MEXICO (DIPTERA: TIPULIDAE)^{1,2}

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ABSTRACT: A new species of Tipulidae, *Tipula* (*Sinotipula*) *tesuque*, from New Mexico is described and figured.

The subgenus *Sinotipula* Alexander (1935) consists of 53 species distributed in the western Nearctic, eastern Palearctic and Oriental Regions. Savchenko (1961) suggested that *Sinotipula* (as *Bellardina*) is closely related to *Nippotipula*, *Yamatotipula* and *Acutipula*, based on shared possession of a bifurcate ninth tergum set with black tack-like bristles, and aquatic larvae with well developed anal papillae. I agree with this based on examination of several nearctic species and the literature, except that in several members of these groups, the ninth tergum is not bifurcate. The phylogenetic relationships of these subgenera remain unknown. The characters Alexander (1935, 1965) gave for *Sinotipula* are plesiomorphic, occurring in several other genera and subgenera, or apomorphic for species groups within *Sinotipula*. There are no known apomorphies to indicate that *Sinotipula* is monophyletic. Within *Sinotipula*, the male and female genitalia are morphologically very diverse but often relatively uniform within groups of species. The male genitalia of *T. (Sinotipula) aspersa* share apparent apomorphies with those of *T. (Yamatotipula) jacintoensis* and *T. (Yamatotipula) spernax* and have a general form similar to most species of *Yamatotipula*, yet possess body coloration, wing venation and wing pattern of *Sinotipula*. This suggests that *Sinotipula* may be paraphyletic to *Yamatotipula*. The above three species have an inner gonostylus with a broad, prolonged main body and beak, a long, narrow, dorsal process parallel to the main body, and a small posterior lobe with short, fine setae. Phylogenetic relationships within *Sinotipula* are unknown.

¹Received March 15, 1985. Accepted May 13, 1985.

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Tipula (Sinotipula) tesuque, new species

(Figs. 1-7)

Body length about 14 mm.

Rostrum brown dorsally, lighter ventrally; nasus distinct, distal setae slightly longer than basal setae; palpi light brown. Vertex with a broad, median brown stripe, with grayish brown pruinosity and short lateral setae; vertical tubercle with short, narrow median brown stripe. Scape and pedicel yellowish; flagellomeres brown, subcylindrical; verticils .5 - 1.5 length of flagellomeres. Antennal length, male, about 4 mm.

Pronotum brown; prothorax dorsolaterally light gray, sublaterally very dark brown and laterally light gray and pruinose. Prescutum light brown with four longitudinal stripes; median pair brown, lateral pair gray and narrowly bordered with brown, border broader medially. Scutum with two broad gray stripes longitudinally bordered with brown. Scutellum brown, darker anteriorly. Postnotum pruinose, brown anteromedially, gray posterolaterally, with a narrow median brown stripe.

Wing (fig. 1) mostly brown, with pale spots before and after stigma, just after midlength of cell bm , at beginning and at midlength of cell CuA , in cells near cord, at wing margin in middle of cells R_5 to CuA_1 , just before A_1 at margin and just before and after A_2 at margin; dark brown spot at origin of Rs ; stigma dark brown. Venation: R_2 entire, Rs twice as long as $m-cu$; $m-m$ and distal section of M_1+2 subequal. Wing length, male, 15-16 mm.

Pleura light brown with light gray pruinosity; darker brown areas on anepisternum, anepimeron and lower halves of meron and katepisternum. Bases of haltere yellowish; stem brown, knob darker brown.

Coxae dark brown basally, pale brown distally; trochanters yellowish brown, femora and tibiae yellowish brown, very dark brown apically, basitarsi yellowish brown near base, rest of tarsi dark brown. Tibial spur formula, 1-1-2.

Abdominal terga 2-7 orange brown medially, darker brown sublaterally, narrowly gray to pale brown laterally. Eighth sternum simple. Posterior margin of ninth tergum (fig. 2) bearing a median process with short, dark setae dorsally and giving rise to two smaller, simple blades lateroventrally. Ninth sternum (fig. 3) with moderately long setae adjacent to median membranous area; median sclerites giving rise to a lyrifiform structure (fig. 6). Ninth tergum and sternum separated by a distinct but partial suture (fig. 4); gonocoxite fused to ninth sternum. Outer gonostylus (fig. 5) large, curved dorsomedially about one-third from base, with numerous setae on lateral surface, sparse setae on mesal surface, bifurcate at tip, each half of

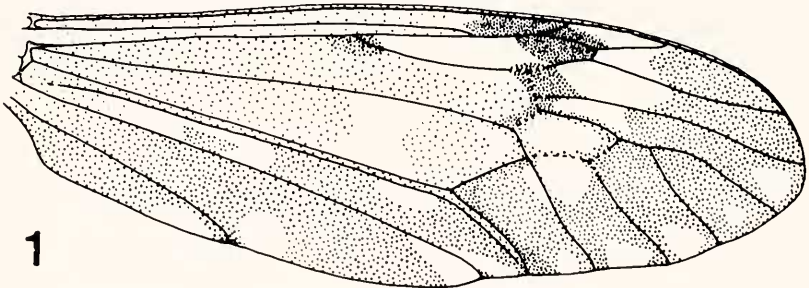
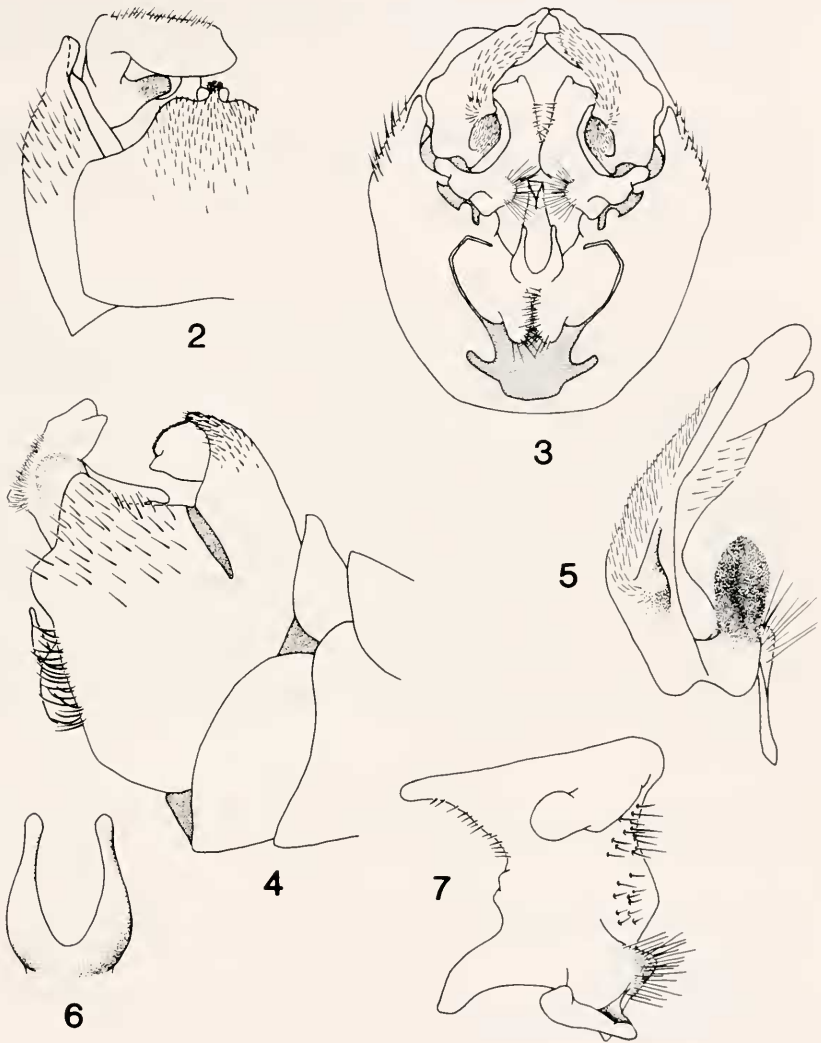


Figure 1. *Tipula tesuque*, right wing.



Figures 2-7; *Tipula tesuque*, male genitalia. Figure 2; dorsal view. Figure 3; ventral view. Figure 4; lateral view. Figure 5; outer gonostylus, mesal view. Figure 6; lyriform structure of ninth sternum, ventral view. Figure 7; inner gonostylus, lateral view.

bifurcation short and blade-like; a small pale process with very fine setae at base of style. Inner gonostylus (fig. 7) slightly smaller than outer gonostylus, short setae on lower edge of beak, posteromedial surface with longer, blunt setae and a small polished knob; basally a small pale cushion with two kinds of setae: some long and fine, some very short, dense and fine. Adminiculum simple, conical. Posterior apodemes of vesica small; aedeagus stout.

Holotype - male, New Mexico, Santa Fe Co., Big Tesuque Forest Service Campground, 12 mi NE Santa Fe, 23 June 1981, 9700ft, G. Byers, E. May, S. Teale. Paratypes - two males, topotypic, 22 June 1981. All types are in the Snow Entomological Museum, University of Kansas.

Etymology - The specific epithet is a noun in apposition based on the Big Tesuque River where the types were collected.

The type series was collected on the banks of the Big Tesuque River which at that point is a fast flowing mountain stream amidst a forest of predominantly aspen with fewer spruces. Vegetation along the banks is mostly willows, alder, sedges and grasses. The larvae are unknown, but those of other species of *Sinotipula* are aquatic (Gelhaus, 1983).

This species keys to *Sinotipula* in Alexander and Byers (1981). Similarities of the male genitalia suggest that *T. tesuque* is most closely related to *T. catalinensis* Alexander of Arizona. They are the only members of this holarctic subgenus with a lyriform structure on the ninth sternum and with the ninth tergum as described below. The primary genitalic differences are as follows: *T. catalinensis* with posterodorsal projection of inner gonostylus long, lower beak present, outer gonostylus gently curved, and lyriform structure of ninth sternum with slender stems; *T. tesuque* with posterodorsal projection of inner gonostylus short, lower beak absent, outer gonostylus abruptly curved, and appendage of ninth sternum with robust stems.

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